

REMARKS

In response to the Office Action of April 28, 2006, claim 1 has been amended to recite that in the claimed polymerization process in the presence of a catalyst system, "an activated catalyst component including the polymerization catalyst (a) and the ionic activator (b) is first prepared and then the organometallic compound (c) is premixed with the activated catalyst component as a separate component before the resulting mixture is added to the reactor as the catalyst system." Support for this can be found in claim 9, which has been cancelled, page 4, lines 1-4, Examples 1 and 2 and the discussion at page 2, line 20 concerning the difference between this invention and the prior art as exemplified by WO 99/28353. Thus in this method an activated catalyst is first prepared and then the organometallic compound is separately added to the activated catalyst to form a mixture which is then added to the reactor as the catalyst system for the polymerization process.

Claim 1 has also been amended to include the subject matter of claim 15 which has been cancelled.

As a result of the amendment of claim 1, a new claim 16 has been added that covers the alternative method of adding the organometallic compound directly to the reactor as a separate component rather than first premixing it with the activated catalyst before it is added to the reactor. Support for claim 16 can be found on page 3, lines 23-33 of the specification. New claims 17-23 correspond to claims 2-8, respectively, claim 24 to claim 10 which has been cancelled and claims 25-28 to claims 11-14, respectively, all dependent on claim 16.

In the Office Action, the Examiner continued to reject claims 1-3, 5, and 7-15 under 35 U.S.C. §102(b) for being anticipated by Jacobsen, claims 1-4, 7-9, 11, 12, 14,

and 15 under §102(e) for being anticipated by Watanabe and claims 1, 2, 5-9, and 11-15 under §102(b) for being anticipated by WO 99/28353.

As pointed out in the last Reply, the essence of the present invention is that the organometallic compound is added to the reactor as a separate component to the already prepared and activated catalyst component including a) the polymerization catalyst and b) the ionic activator. This can occur by either 1) premixing the organometallic compound as a separate component to the already prepared and activated catalyst before it is added to the reactor (claim 1) or 2) adding the organometallic compound as a separate component to the reactor (claim 16). The process results in improved poison scavenging as well as advantages in activity profile, catalyst activity and product characteristics.

In contrast, while in Jacobsen the catalyst composition comprises the same three components, a catalyst, an ionic activator, and an organometallic compound, there is no teaching of first preparing an activated catalyst of the catalyst and the activator and then separately adding the organometallic compound to that as set forth in claim 1 or separately adding the organometallic compound directly to the reactor as set forth in claim 16. Rather in Jacobsen, the organometallic compound is part of the preparation of the activated catalyst. As discussed, for example, in the abstract and in column 7, line 44 to column 8, line 34, the support, the organometallic compound (which may be an aluminoxane, column 6, line 40) and the ionic activator are first mixed together and to which the catalyst is then added. See in particular column 8, lines 29-34 of the reference.

While the reference discloses in the last sentence of the abstract that the order of addition is "immaterial," there appears to be no teaching of first mixing the ionic activator with the catalyst and thereafter mixing it with the organometallic compound as claimed. If the Examiner believes the reference, in fact, teaches such order of mixing, it would be appreciated if he would point out where such is actually taught. Without such a teaching, it is submitted that none of the claims can be considered to be anticipated by Jacobsen.

Similarly in Example 8 of WO 99/28353 referenced by the Examiner on page 128, a triethylaluminum-treated support material of silica is impregnated with a borate containing ethoxydiethylaluminum which is then combined with a metallocene. The ethoxyaluminum compound may be an organometallic compound within the scope of those claimed, but it is combined with the activator before it is combined with the catalyst. In contrast, in the present invention the activator and catalyst are first combined to form an activated catalyst to which is then added the organometallic compound. See the discussion of the difference between this reference and the present invention on page 2, lines 16-20 of the specification. Not only is the preparation of the catalyst system different, but in view of the comment on page 2, lines 20-22, the reference actually teaches away from preparing the catalyst system according to the present invention. Accordingly, it is not believed that any of the claims are anticipated by WO 99/28353.

In Watanabe, the Examiner refers to Example 6. Here also, as in the other two references, an olefin polymerization catalyst is first prepared by contacting a transition metal compound with an aluminum oxy compound modified with a compound having a

hydroxyl group, an organoaluminum compound, and a borate activator. These four components are used together as the olefin polymerization catalyst. See Fig. 1.

Nowhere does it disclose separately contacting an organometallic compound of the type claimed with an already prepared and activated polymerization catalyst either before or after it is injected into the reactor as required by applicants' claims.

More particularly, in Example 6 in column 27 of Watanabe, a compound b6 slurry for the copolymerization of ethylene-hexene is prepared by treatment of a cyclohexane solution of tetraisobutylaluminum with pentafluorophenol to give a modified aluminoxane activator.

The polymerization procedure in Watanabe is that used in Example 4, i.e., ethylene and hexene are copolymerized in the presence of a mixture of triisobutylaluminum and compound A1 (a transition metal compound) together with the modified aluminoxane activator. Watanabe therefore describes a catalyst component of a transition metal compound and an alkylaluminum compound which is used with a modified aluminoxane activator. There is no separate addition of an organometallic compound of the type claimed to an activated catalyst component including a polymerization catalyst and a ionic activator as required by the claims.

Moreover, the claims of the present invention require that the ionic activator have a cation and an anion, wherein the anion has at least one substituent comprising a moiety having an active hydrogen. The described modified aluminoxane activator is not such an activator. Thus the activator used in Watanabe is not the ionic activator required by the claims.

Accordingly, for both of these reasons, it is not believed that any of the claims are anticipated by Watanabe.

In the Office Action, the Examiner commented that applicants' claims do not require that the organometallic compound be added as a separate component. It was believed this was inherent in the way the claims were constructed, because the organometallic compound was being added "in the presence of" the activated catalyst that included the polymerization catalyst and the ionic activator. In any event, independent claims 1 and 16 now recite that the organometallic compound is being added to the activated catalyst "as a separate component."

It is believed that none of claims 1-8, 11-14, and 16-28 are anticipated by any of the three cited references. Their withdrawal as a ground of rejection under §102 and the allowance of the claims is therefore requested.

A request for Continued Examination is being filed with this Reply to enable the Examiner to consider the amended claims at this time.


In view of the foregoing amendments and remarks, applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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